NCRST-E

National Consortia on Remote Sensing in Transportation - Environmental Assessment

DEFINING THE NEED FOR REMOTELY SENSED INFORMATION...

The National Consortium on Remote Sensing in Transportation - Environmental Assessments (NCRST-E) is one of four consortia established by the US Department of Transportation and NASA to lead in the application of remote sensing and geospatial technologies in the transportation industry. The primary mission of the consortium for Environmental Assessment is to develop and promote the use of remote sensing and geospatial technologies and requisite analysis products by transportation decision-makers and environmental assessment specialists to measure, monitor, and assess environmental conditions in relation to transportation infrastructure.

Artwork courtesy of EarthWatch Incorporated

Input from potential stakeholders:

The National Academy of Sciences Transportation Research Board hosted a workshop in December, 2000, for the NCRST to publicize the establishment of the four consortia and to seek input from potential stakeholders associated with federal, state and local governments as to what their geospatial needs might be in each of the consortia categories: environmental assessment; traffic flow; infrastructure; and disasters, safety, and hazards. The result was a surprisingly broad array of needs requiring first-time and reoccurring assessment. Emphasis is placed on the pre-construction phase and streamlining (improved efficiencies in both time and cost) the overall NEPA process.

Environmental topics of greatest concern to potential stakeholders:

- Streamlining regulatory compliance
- Wetlands
  - identifying and delineating
  - maintaining proper functioning condition
  - habitat protection
  - evaluating/monitoring banking decisions
- Watershed hydrology
  - evaluating impacts of development activities
  - monitoring land use/land cover changes
  - floodplain mapping and management with improved elevation data
  - assessing water quality issues
  - managing stormwater runoff
  - monitoring stream scour due to infrastructure placement
- Assessing potential impacts of development on air quality
- Mapping and managing the habitats of threatened and endangered species
- Providing improvements in environmental justice
- Mapping and protecting cultural resources

Issues to resolve for remote sensing applications:

- Locating and acquiring data
  - metropolitan planning organizations have limited experience with geospatial data and much less with remote sensing data.
  - can NCRST help create a data directory and assist in data acquisition?
- Regulatory authority--who are the regulatory authorities for NEPA protected environmental parameters?
- Regulatory acceptance--how will remote sensing be embraced in a regulatory setting presently based on ground-based assessment techniques?
- Accuracy--it is difficult to quantify for many remote sensing variables.
- Metrics/measurements--do the metrics for existing data transfer to remote sensing data or are different metrics required?
- Cost/benefit information--is remote sensing better?
- Transferability--who will assume the technical expertise required for remote sensing applications?
- Education/Outreach--what kind of training programs are needed for new applications?

Suggestions of stakeholders for research programs and projects:

- Provide a stable source of funds for an applied research program with adequate support for selected projects.
- Support the development of technology implementation procedures.
- Seek acceptance and involvement of regulatory agencies.
- Improve communication, coordination, and cooperation with regulatory and resource agencies.

Continued refinement of needs assessment:

Stakeholders have defined broad information needs, and many issues regarding remote sensing applications in transportation have been identified. Still more research is needed to further refine the list of needs. To this end, stakeholders and data providers will be contacted to take the needs assessment to the next level. Opportunities to use the information provided through remote sensing in the environmental assessment process and in meeting NEPA guidelines will be identified. Other items to be determined include specific information needs of stakeholders and their associated accuracy requirements as well as the extent to which remote sensing technology is currently being used in transportation. From these data, consortium researchers will refine their demonstration projects and deliverables to better meet stakeholder needs.

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